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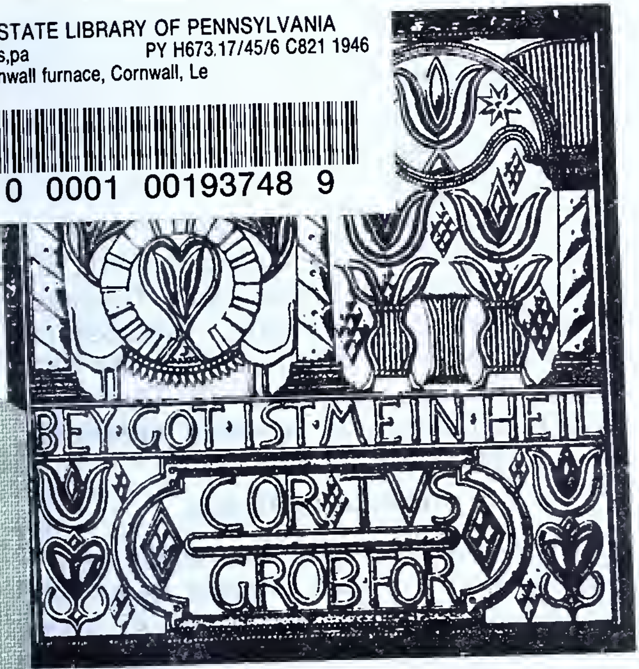

Cornwall Furnace

Cornwall, Lebanon County

HISTORIC CHARCOAL IRON FURNACE

Operated from 1742 to 1883

Property of the
Commonwealth of Pennsylvania

Administered by
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Cornwall Furnace

ONE of the earliest and probably the most significant iron works in the history of Pennsylvania, Cornwall Furnace is now a property of the Commonwealth, administered by the Pennsylvania Historical and Museum Commission. Located on the Lakes-to-Sea Highway, on the outskirts of the Borough of Cornwall, Lebanon County, it is easily accessible to tourists.

Ancestor of Giants

The energetic pioneer beginnings of the gigantic iron and steel industry of modern Pennsylvania are well represented by Cornwall Furnace, a charcoal iron furnace which began operation in 1742 and was last used in 1883. In its long existence it covered the transition period from agricultural to industrial civilization, and was itself a part of the change. While it was flaming and converting the ore of the surrounding hills to the most useful of metals, Pennsylvania passed the last thirty formative years as a British colony, joined the other colonies to win independence, and then to establish the United States. Through the dawning years of American greatness, it still produced its precious metal which helped to build our modern nation—iron for cannon, iron for the railroads, iron for farm implements, iron for stoves, iron for a thousand different uses. Judged by modern standards, its production was but a trifle, but it is a type or representative of thousands of other similar furnaces from which the modern iron and steel industry has developed.

Robert Coleman was no mere ironmaster, however, but an active participant in the political life of his time. An officer of the Pennsylvania militia during the Revolution, he served the cause of the revolting colonies most ably. After the struggle, he became prominent in the early political life of the Commonwealth, serving as a member of the Convention which framed the State Constitution of 1790, and as a member of the Legislature. Coleman likewise raised and commanded a troop during the Whiskey Insurrection and was twice a Presidential elector. He died on August 14, 1825, and his properties were inherited by his sons. Cornwall Furnace was owned by Coleman's descendants until 1932, when Robert Coleman's great-granddaughter, Mrs. Margaret C. Buckingham, with great generosity presented the Furnace to the Commonwealth of Pennsylvania.

The Cornwall Iron Mine

The ore banks at Cornwall constitute one of the world's great iron mines. The mine was found by Acrelius in 1756 to be "rich and abundant, forty feet deep, commencing two feet under the earth's surface." The ease of mining and the richness of the deposit made the Cornwall property one of the most valuable in the United States prior to the full development of the Lake Superior iron region at the close of the nineteenth century. From their early utilization until 1907 it is estimated that over 20,000,000 tons of ore were taken from the Cornwall banks. From 1742 to 1790, the consumption of ore amounted to 96,000 tons; between 1790 and 1848, it was 116,000 tons; while from the latter date to 1864, it amounted to 1,524,908 tons. Under the Cornwall Ore Bank Company, formed in 1864, the utilization of ore by Cornwall Furnace and allied properties ran by 1900 to 13,281,263 tons. Today, the open cut mine at Cornwall assisted by three underground slopes, is still in active production, and still constitutes one of the more valuable ore properties in the United States. Cornwall is as important today in national defense as when it supplied cannon and shells to Washington's army.

The Furnace and its Operation

The exterior of the Cornwall buildings combines beauty with utility. The old red sandstone walls, their irregular blocks mellowed by time in rich reds and browns, are pierced by pointed windows with tiny leaded panes, giving an almost churchlike effect. The very absence of symmetry, the buildings seemingly placed without regard for any formal architectural plan, lends it an added charm, though it also makes it impossible to obtain a really adequate photograph or picture of the whole structure.

As with most early furnaces, the buildings are on the face of a steep hill, so that there are many odd floors or levels connected by stairs, galleries or runways. The principal upper level includes the weighing room and the charging platform, from which the charge of ore, limestone, and charcoal was dropped into the furnace. The principal lower level is the main foundry floor, even with the base of the furnace. Here the molten iron was cast. The cold air blast for the furnace was originally derived from a huge bellows worked by an overshot water wheel. Later, the output was greatly increased by the substitution of a blowing engine driven by steam which was generated in an ingenious manner by waste heat from the furnace.

The huge bulk of the square stone furnace dominates the foundry floor. It was originally 20 feet square at the base and 11 feet square at the top, but in 1856 the furnace was strengthened, and it is now 28 feet square at the floor and 21 feet square at the top. The height remained the same, 31 feet. The usual charge was 500 pounds of ore, about 800 pounds of charcoal, and 80 to 100 pounds of limestone. In full blast, the furnace would take 18 charges in 12 hours. The cost of production in 1783 may be estimated at slightly less than 4½ pounds, Pennsylvania money, per ton of pig iron, at a time when pig iron brought 8 or 9 pounds per ton in Philadelphia. Castings brought much more, with a lower proportionate cost of production. The castings included stoveplates for six- and ten-plate stoves, kettles, pans for evaporating salt, cannon, and shot and shell. In later years, only pig iron was made. The Frontispiece shows a stoveplate made at Cornwall in the days when it was Curtis Grubb's Furnace. It is owned by Mrs. A. J. Steinman of Lancaster.

A Historic Property of the Commonwealth

Control of this historic property was vested in the Pennsylvania Historical and Museum Commission through the generosity of Mrs. Margaret C. Buckingham, owner of the property. The Commission was authorized by Act of Assembly, approved May 21, 1931, to accept the gift on behalf of the Comat Cornwall during the war. The cannon were tested or proved on a level field east of the foundry, being fired twice for a trial. A number of cannon balls were plowed up in this field in 1932, presumably some which had been used in these tests.

These cannon, together with the shot and shell also made at Cornwall, were essential to the struggling patriot cause. So important was it that General Washington and his French aide, General Lafayette, came to visit the furnace in October, 1778, and to see the iron poured for cannon. Hessian prisoners, guarded at nearby Hebron by a force under Colonel Curtis Grubb, were hired to cut and haul wood for the charcoal supply of the furnace.

Robert Coleman

Control of the furnace and the ore banks did not remain in the Grubb family. Robert Coleman, a leading ironmaster, became interested in them, and by 1798 had purchased from the various Grubb heirs five-sixths of the ore banks, as well as Cornwall Furnace itself. Coleman was a native of the north of Ireland and had come to America in 1764. He early became active in the iron industry in Lebanon County and was for a brief time an employee of the Grubb family. Reading Furnace, Salford Forge, and Elizabeth Furnace were other properties in which Coleman was interested. The acquisition of Cornwall was the result of a program of expanding activity on the part of Coleman which was to make him a principal ironmaster in the early history of the Commonwealth.

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Peter Grubb and His Furnace

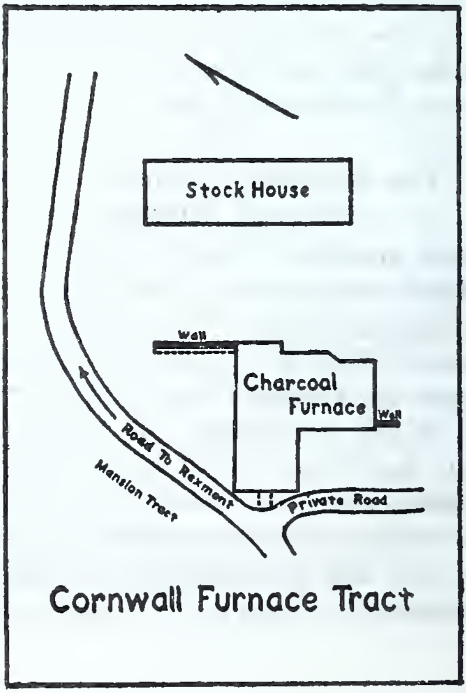
April 5, 1734, Peter Grubb bought three hundred acres of land along Furnace Creek in what is today Lebanon County. Here was a natural wonder, a mountain of iron ore, and with great foresight Grubb made two later purchases, to get all of the ore banks. There is a tradition that Grubb established a bloomery forge near the present furnace in 1735. It is certain, however, that in 1739 he contracted for the building of a charcoal iron furnace, to be called Cornwall. It was named for the county in Great Britain from which his father had come.

Cornwall Furnace was first put into blast in 1742. After three years, it was leased, together with Hopewell Furnace, likewise the property of Grubb, to twelve persons who operated it as the Cornwall Company. (Hopewell Furnace is now preserved by the National Park Service, as a National Historic Monument.) Grubb retained full control of the ore banks, however, until his death in 1754, when they were inherited by his sons Curtis and Peter.

The American Revolution and Cornwall Furnace

Curtis and Peter Grubb were colonels in the Revolutionary army, and their furnace also rendered service to the cause of independence. The first 12-pounder cannon to be made at Cornwall was "shipped" in a farm wagon on October 26, 1776. Some trouble was experienced because the cannon were cast too heavy for use on the ships of the newly-established Continental Navy, but with experience the difficulty was surmounted. A total of 42 cannon was cast monwealth, as well as Mrs. Buckingham's further munificent offer of a trust fund to provide for perpetual maintenance of the property. June 21, 1932, by deed dated the preceding May 27, the one and thirty-two hundredths acres of land including the Furnace establishment were formerly transferred to the Commonwealth. In 1935 Mrs. Buckingham deposited with the State Treasurer the sum of $35,000 for the trust fund.

The Furnace and the buildings connected with it are in excellent condition. Probably no other historic place in the Commonwealth constitutes so excellent a memorial to the early Pennsylvania iron industry, nor has greater interest in the circumstances of today, for the iron mines of Cornwall are still an important source of iron in the nation's war program.



Cornwall Furnace Tract